

HEARING AID WITH LARGE DIAPHRAGM MICROPHONE ELEMENT INCLUDING A PRINTED CIRCUIT BOARD

ABSTRACT OF THE DISCLOSURE

A disposable-type hearing aid uses a relatively large single diaphragm or a large
5 single diaphragm subdivided into a plurality of smaller active diaphragm areas obtained
using a grate-like back support plate with ridges which contact and divide the
diaphragm into the several smaller active diaphragm areas. The diaphragm and a
backplate are enclosed in a metal housing and are disposed proximal and parallel to a
10 shell-like hearing aid enclosure having sound inlets. The metal housing is closed at an
end opposite the sound inlets by a printed circuit board (PCB) forming an acoustical
seal for a back volume of the microphone. The PCB also carries substantially all the
electronic components for the hearing aid thereon. The PCB has a ground plane in
15 contact with the housing whereby the PCB also acts as an EMI shield. An electrical
connection is formed in various ways between the back support plate and the PCB
during assembly of the metal housing and components with the PCB. Mass production
of disposable hearing aids with large diaphragms and relatively low noise levels is thus
possible using this invention.